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27 Black-throated Bobwhite

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Black-throated Bobwhite

Colinus nigrogularis (Gould) 1843

OTHER VERNACULAR NAMES

*B*LACK-THROATED quail, Codorniz Garganta
Negra, Cuiche Yucateco, Yucatán bobwhite.

RANGE

The Yucatán peninsula, the Lake Petén district of Guatemala, and coastal portions of British Honduras and Honduras, to extreme northeastern Nicaragua.

MEXICAN SUBSPECIES

C. n. caboti Van Tyne and Trautman. Resident of eastern Campeche and Yucatán except for the Progreso region.

C. n. persicus Van Tyne and Trautman. Resident of the Progreso region of the Yucatan peninsula.

MEASUREMENTS

Folded wing: Adults, both sexes, 95–104 mm (sexual differences negligible).

Tail: Adults, both sexes, 50–59 mm (sexual differences negligible).

IDENTIFICATION

Length, 7.5–8.5 inches. The sexes differ considerably in appearance. This species somewhat resembles the bobwhites of adjacent Mexico in that both sexes are uncrested, have brownish crowns, and a white (buffy in females) eye-stripe extending from the forehead down the sides of the neck. Males of this species in addition have a mottled brown crown, black in front of the eyes, and a black throat, which is separated from the black eye-stripe by a broad whitish stripe that passes through the ear region and down the neck, where it separates the black throat from the rest of the underparts. The underparts of males are contrastingly colored with a “scaly” black and white pattern that includes most of the lower surfaces. The upperparts are complexly patterned with buff, brown, and black, as in the bobwhite. Females generally resemble female bobwhites, but the nape feathers are edged with gray, the ear feathers are streaked with buff, and the breast feathers are white with dark shaft-streaks and cross-bars that organize the feather pattern into two rows of terminal white spots.

FIELD MARKS

This species closely resembles the bobwhite, and any bobwhite-like bird on the Yucatán peninsula or at least east of the Usumacinta river can safely be identified as this species. Males utter a *bobwhite* location call that cannot be readily distinguished from the bobwhite's corresponding call.

AGE AND SEX CRITERIA

Females have buffy chins and upper throats rather than black chins and throats as do adult males.

Immatures have the upper greater coverts of the primaries buffy-tipped. They can probably also be identified using the criteria mentioned under the bobwhite account.

Juveniles have narrow white shaft-streaks present in the scapular, interscapular, and upper back feathers (Ridgway and Friedmann, 1946).

Downy young (illustrated in color plate 110) of this species are extremely similar to downy bobwhites but appear to have a somewhat less fuscous and more reddish to chestnut tone dorsally, which is evident both in the mid-dorsal stripe and in the facial areas. The postocular stripe is also

more conspicuous and more nearly continuous in this species than in the bobwhite. In the closely related crested bobwhite of South America a trend toward a dark blotch behind the ear in the pale superciliary area also becomes apparent but is much less visible in the black-throated bobwhite and can scarcely be detected in the bobwhite.

DISTRIBUTION AND HABITAT

The Mexican distribution of this bobwhite has been depicted very well by Leopold (1959). I can find no locality records outside the range indicated by him, with the exception of 1965 sight records near the ruins of Coba and Tulum, Quintana Roo (Lee, 1966). These localities are substantially east of any records shown by Leopold or the easternmost locality listed by Paynter (1955) and may reflect a recent range extension related to the forest clearing that is rapidly occurring in Quintana Roo at the present time. The southernmost sight record listed by Paynter is one for the Pixoyal vicinity, about twenty-five miles north of Escarcega, Campeche. The southernmost specimen record I know of is for San Dimas, Campeche (Storer, 1961). I have not seen the bird south of the city of Campeche, but the hilly, calcareous land with dense tropical forest scrub that is being increasingly burned for agricultural purposes should support moderate populations of the species. At approximately the vicinity of Escarcega, this hilly and shallow-soil land gives way to flat, deep-soiled low country that drains into the Laguna de Terminos. From this point southwestward to the Río Usumacinta, Tabasco, I found no evidence of any bobwhites during four trips. The land consists largely of dry or wet lowland evergreen forest. However, an area of savanna-like vegetation occurs from about six miles east of the Río Usumacinta for about eight miles along highway 186, where it merges with lowland evergreen forest. This grazing land would seemingly support bobwhites, but it is associated with a very high rainfall and extremely poor drainage; thus the periodic flooding during the summer would probably effectively prevent utilization by bobwhites, populations of which do occur (*Colinus virginianus minor*) only a few miles west of the Río Usumacinta on hilly ground. Therefore there appears to be a barrier of at least sixty miles of unsuitable habitat between the ranges of the black-throated bobwhite and the least bobwhite, and there has been no recent past contact between them or likelihood of future natural contacts. The accompanying range map illustrates the relationship of the ranges of the black-throated bobwhite with those of *virginianus* and also the Guatemalan bobwhite (*cristatus incanus*).

The two Mexican subspecies of the black-throated bobwhite occupy

slightly different climatic and habitat situations, although they no doubt intergrade. Along the northern, relatively arid coast, the subspecies *persiccus* occurs in coastal scrub forest (Paynter, 1955), where the total annual rainfall may be as little as nineteen inches near Progreso (Edwards, 1968). From about twenty kilometers inland toward Mérida (where the annual rainfall is about thirty-six inches) the subspecies *caboti* occurs in the open deciduous forest, small cultivated areas (milpas), and particularly in the extensive henequen or sisal (*Agave fourcroydes*) plantings (Paynter, 1955). Indeed, the map of henequen-producing areas shown by White and Foscue (1939) corresponds fairly well to the probable areas of maximum abundance of this subspecies. Henequen is one of the few economically important plants that grows well on these arid, shallow, and porous limestone soils, and the associated weed cover provides an excellent seed food source, while the spiny leaves and ease of terrestrial movement under the plants provides perfect protective cover for the birds.

In spite of the small home ranges these birds appear to have, they are able rapidly to colonize new forest openings that are associated with the building of any new roads into the heavy forest cover. Indeed, it is probable that the birds follow newly-constructed roads and soon colonize the milpas that invariably develop within a short time. Leopold (1959) noted that he found the species in all the open, weedy fields he saw in southeastern Yucatán, no matter how remote they appeared to be from other clearings.

In the Petén district of Guatemala the species does not presently occur in the vicinity of Tikal but is present at Laguna Petén Itza and is common in the savanna country south of that lake (Smithe, 1966). These savanna-like clearings in the evergreen tropical forest are probably artificially maintained by agricultural activity, rather than being natural results of climatic or soil conditions (Lundell, 1937). Apparently the bird is fairly common on these savannas near La Libertad and San Francisco (Van Tyne, 1935; Saunders, Halloway, and Handley, 1950).

In British Honduras the species is locally common, occurring on lowland pine ridges, especially in mixtures of oak, pine, and palmetto overgrown with tall grasses (Russell, 1964). In eastern Honduras it occurs fairly commonly on lowland pine savannas of the Mosquitia area and also occurs in the corresponding portion of Nicaragua (Monroe, 1968).

POPULATION DENSITY

Few objective figures on population density are available for this bird. Paynter (1955) noted that the bird occurs in "unbelievable numbers" in the henequen fields near Mérida. Klaas (1968) indicated that in the coastal scrub

near Sisal he observed a pair of quail about every hundred paces during a two-mile walk in August, when the birds were breeding. I have tried to estimate density based on singing males heard during June near Mérida, and in one case, where a henequen field was bounded on two sides by low tropical forest, I observed one definite pair and heard three singing males in an area of 2.6 acres, or about two birds per acre. Just beyond the limits of the paced area at least three more males were singing. The average estimated distance between the six singing males was about 140 yards. In such areas where henequen fields are bounded on one or more sides by scrub or forest vegetation, I would estimate the population to commonly exceed one bird per acre.

HABITAT REQUIREMENTS

The basic bobwhite requirements of a weedy seed supply for food, brushy or woody escape cover, and fairly open grassy or herbaceous cover for nesting and foraging is well met in the northern Yucatán peninsula. If any factor might be limiting, it would be a supply of water or succulent food during the relatively long dry season, which extends roughly from November to May. Virtually no surface water is to be found even during the wet season, but the availability of herbaceous leafage at that time makes a supply of free water unnecessary. However, during the latter part of the dry season, by April or May and sometimes into early June, the herbaceous vegetation has long since dried up and the birds may suffer considerably from lack of water. During such times they may be easily caught by setting out walk-in traps using water for bait.

FOOD AND FORAGING BEHAVIOR

No doubt a variety of weedy herbs provides the seed supply of bobwhites, although not many specimens have been examined for their food contents. Leopold (1959) noted that assorted weed seeds were present in the crops he examined, particularly the seeds of a species of tick trefoil (*Desmodium*) which is commonly found in newly cleared fields.

If my experiences near Mérida are typical, it would seem that the birds leave the cover of the forest scrub before daylight and move out into the henequen fields to feed, where they remain until about 8:00 A.M. By that time the sun is already becoming uncomfortably hot, and the birds gradually walk back to the shady cover of the forest, where they remain through the hottest part of the day. Again at about 5:00 P.M., they will return to the fields for a second feeding session, which may last until dark. They probably return to the cover of the forest to roost at night, although this is somewhat uncertain.

MOBILITY AND MOVEMENTS

Probably the black-throated bobwhite differs very little from the United States races of bobwhites as to its normal mobility. The home ranges of the birds I observed appeared to be very small (during the wet season at least), with only short daily movements between forest cover and open fields. Flights are rarely very long, since normally the birds do not have to move far to get into heavier cover when flushed. Like the United States bobwhites, the birds hold well for pointing dogs (Leopold, 1959), but except in the youngest of henequen fields they occur in habitats that are virtually impossible to penetrate on foot.

SOCIAL AND REPRODUCTIVE BEHAVIOR

During the nonbreeding (dry) season, the birds are found in coveys of about the same size as the United States bobwhite. Stone (1890) indicated that groups of twelve to twenty birds were typical in his observations near Izamal. Probably these coveys are maintained until the start of the rainy season, which varies somewhat in different years but usually begins between April and June. To what extent the reproductive cycle of the birds may be tied to increasing photoperiods or to increased availability of green foods as a proximal stimulus for gonadal development is somewhat uncertain. However, it is interesting that within forty days after I put a captive but wild-caught pair of birds under a long-day artificially lighted situation, the female laid an egg. The small size of the egg suggested that it was perhaps the first she had ever laid, and she had been trapped during the previous dry season and held in captivity several months without laying. One other female also placed on a long-day photoperiod laid her first egg in thirty-five days, but a third female which had been pecked severely did not lay any eggs.

The breeding season begins with the breakup of coveys and the establishment of singing posts by unmated males. Chapman (1896) was apparently the first to notice that the male's whistled *bob-white* call is virtually the same as that of the United States form. The call intervals of individual males probably varies somewhat, but the average of twenty-two such intervals that I timed was seventeen seconds, with ranges of thirteen to twenty-five seconds. Much more commonly than in the United States races the male omits the first note of the *ah-bob-white* call, but sometimes a single male will utter both call-types.

The period of breeding is greatly prolonged and is presumably dependent on the relative length of the rainy season. Paynter (1955) found evidence

of breeding in *caboti* as early as April 30 and reported a female with eggs taken in late June. The specimens of *persiccus* that Klaas (1968) collected in August were in full breeding condition, and juvenile birds have also been collected as late as early December (Paynter, 1955). It would seem clear that nesting must occur over a four- or five-month period, allowing plenty of time for renesting and possible double-brooding. One female that I inadvertently collected (by hitting it with a car) near Uxmal on June 11, 1969, had an egg in her oviduct, and I observed a brood of young only a few days old near Mérida on July 19, 1970. I was also informed of the finding in mid-July of a nest near Motul with twenty-two eggs in it, and several natives indicated that nests were to be found in the henequen fields during that month.

The nests are apparently often situated under henequen plants in the Mérida area, but I have not seen any personally and have no information on normal clutch sizes. The eggs I have seen that were laid by captive birds have ranged from pale buff color to white and have been slightly smaller than those of United States bobwhites. The average measurements of fourteen eggs are 22.7 mm (with a range of 21.5–23.5) by 30.5 mm (with a range of 30–32) mm. These eggs were among sixteen laid by a single wild-caught female between July 7 and September 1. Two persons in Mérida told me that very small dark specks may sometimes be present on the eggs, and I have also seen such marking on some of the eggs obtained from our captive birds. The incubation period has not been reported previously, but eggs in our laboratory have hatched simultaneously with those of other *Colinus* forms, at twenty-three to twenty-four days.

Vocal Signals

A recent study (Cink, 1971) on the vocalizations of this species indicates that it has many features in common with *virginianus* and somewhat fewer in common with *cristatus*. Contact calls of the black-throated bobwhite consist of *hoy* and *hoy-poo* notes that in both cases are of shorter duration than in *virginianus*. Likewise, the *bob-white* call of the black-throated bobwhite has an average duration that is only about half as long as in *virginianus* (0.9 seconds compared to 1.9 seconds). The prolonged and multiple-syllable caterwaul call of the bobwhite is represented in the black-throated bobwhite by a single *churrr* element that is similar to that found in *cristatus*.

Calls of recently hatched chicks exhibit comparable similarities and differences to those of adults. Cink found that the "lost" calls of isolated chicks are higher pitched than those of the bobwhite, probably a reflection of the

smaller size of the chicks. In both of these species the calls are single-note whistles that are produced in long series. In contrast, the lost calls of *cristatus* consist of a "rolling" tune of higher and lower frequency notes that are distinctly more melodious. Hybrid chicks exhibited intermediate call types.

Cink concluded that although the calls of *nigrogularis* show more features in common with *virginianus* than they do with *cristatus*, the three forms are sufficiently different in vocalizations so as to best be considered allo-species in the absence of suitable tests for possible reproductive isolation. Limited studies on the effects of playbacks of female separation calls indicated virtually no response on the part of unmated males to female calls of the other species.

EVOLUTIONARY RELATIONSHIPS

The geographic distributions of the three major bobwhite types (*virginianus*, *nigrogularis*, and *cristatus*) in southeastern Mexico and Guatemala present an interesting problem of evolution and geographic isolating factors. As mentioned, the black-throated bobwhite is effectively isolated from *virginianus* by an extensive area of wet, tropical lowlands that has doubtless been in existence for a very long period. It is difficult to imagine that the Yucatán population of bobwhite originated by a separation from a common ancestral population in the lowland Campeche Gulf area, and I thus regard the fairly close geographic proximities of these two populations as fortuitous.

Considering the current range of the black-throated bobwhite as a whole, it must generally be accepted that it centers on the Caribbean, extending all the way southward to approximately 15° north latitude. There, it is separated from the interior bobwhite populations of Guatemala and Honduras by climatic and topographic barriers. In Guatemala (see range maps), the known specimen localities of the white-breasted bobwhite (*C. cristatus incanus*) extend easterly almost to Lake Izabal, in the rain-shadow valley of the Río Montagua (Saunders, Halloway, and Handley, 1950), where it occurs in arid tropical scrub vegetation. The more westerly race *hypoleucus* is more typical of grasslands and cultivated areas of Guatemala and El Salvador (Saunders, Halloway, and Handley, 1950; Dickey and van Rossem, 1938). In Honduras the race *sclateri* is typical of the interior highlands, but *leylandi* is found below nine hundred meters in arid Caribbean slope valleys all the way to the coast (Monroe, 1968). Thus there are few topographic barriers between the current ranges of *cristatus* and *nigrogularis*, and their ecological distributions in eastern Guatemala, Honduras, and British Hon-

duras are arid tropical scrub valleys and lowland savannas, especially pine-dominated ones.

It seems probable to me that the black-throated bobwhite evolved in the general area of what is now British Honduras after being isolated from an interior, arid-adapted bobwhite-like ancestor, and subsequently adapted to soil-determined savanna-like openings in this area. Natural disruptions of the tropical forests such as forest fires of the Petén area and Yucatán peninsula probably gradually allowed the population to move northward into the peninsula, as well as moving southeasterly in natural savanna-like areas to what is now eastern Nicaragua. Regrowth of the tropical forest isolated and probably eliminated many of these local populations along the entire range, thus bringing about the quite disjunctive distribution pattern that now exists and allowing a certain degree of subspeciation to develop.

The apparently completely allopatric distributions exhibited by the three major bobwhite types pose a problem in taxonomy. Perhaps they should be regarded as allospecies (Amadon, 1966), to emphasize the obviously very close relationships existing among them. Certainly I agree with Monroe (1968) that *leucopogon* cannot be considered a valid species and with Mayr and Short (1970), who regard the entire *Colinus* group as comprising a superspecies complex. Holman (1961) remarked that the recent species of *Colinus* exhibit fewer interspecific skeletal differences than do those of *Odontophorus* or "*Lophortyx*," with *nigrogularis* and "*leucopogon*" each having only 4 (out of 109 total characters examined) unique characters, while *virginianus* had 2 unique characters. Mayr and Short (1970) concluded that *nigrogularis* should probably be considered conspecific with *virginianus*, and the greater similarities in vocalizations that occur between these two forms than exist between *nigrogularis* and *crististus* would favor that viewpoint (Cink, 1971).